



# FACT SHEET

## Surface Water Monitoring Program Report *September 2005*

### Introduction

**Study goal:** Measure pesticide residues in salmon-bearing streams during the typical pesticide use season.

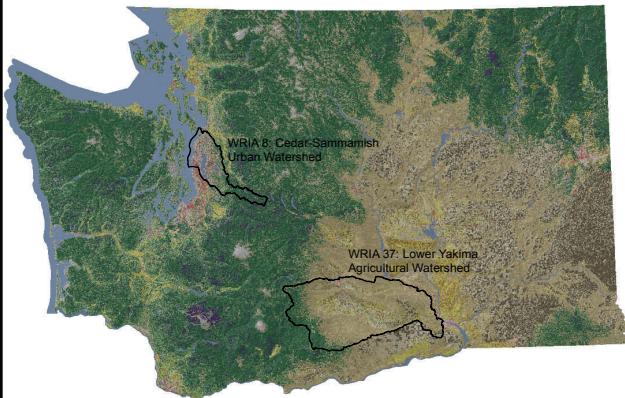


Figure 1. Agricultural & urban study sites

**Background:** In 2002, the Washington State Department of Agriculture (WSDA) contracted the Washington State Department of Ecology (Ecology) to conduct a three-year surface water monitoring program to measure pesticide concentrations in salmon-bearing streams. The information contained in this report is a summary of the monitoring data from the second year (2004) of this three-year study.

**Data Utility:** The data will assist WSDA and the U.S. Environmental Protection Agency (EPA) in evaluating the presence of pesticides and their effects on salmon. In the long term, the data may be used to determine if pesticide use mitigation efforts are successful.

**Study Sites:** The study sites include two watersheds representing agricultural and urban land-use patterns. Three drainages in the Lower Yakima Watershed Resource Inventory Area (WRIA) 37 were selected to represent agricultural land use patterns: Spring Creek, Sulphur Creek Wasteway, and Marion Drain. Thornton Creek, located in WRIA 8, was selected as the urban watershed. (See Figure 1.)

**Sampling:** In both the agricultural and urban watersheds, surface waters were sampled for 87 registered pesticides. The surface waters were also sampled for degradates (pesticide breakdown products) and some historically used compounds, such as DDT. In 2004, sampling occurred weekly from March to October at all downstream sites and every other week at upstream sampling locations on Spring Creek (agricultural watershed) and Thornton Creek (urban watershed).

### Sampling Results

Overall, the sampling results were positive. Although all samples had a pesticide detection, concentrations were generally low and close to analytical detection limits. Fewer pesticides were detected in 2004 in both the agricultural and urban watersheds.

Although the number of different pesticides detected decreased in 2004, a single detection of malathion (3.05 µg/L) in the Marion Drain approached the acute LC<sub>50</sub> for rainbow trout (4 µg/L). The LC<sub>50</sub> is the concentration of a chemical that will cause mortality in 50 percent of the test organisms over a given period of time. No mortality of fish was observed or reported in the Marion drain.

# Sampling Results

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The most commonly found pesticide class for both the agricultural and urban basins was herbicides, representing respectively 83 percent and 74 percent of the detections in 2004. This was consistent with the 2003 results.

Insecticides accounted for 16 percent of the detections in the agricultural basin and 5 percent in the urban basin in 2004.

Figure 2 illustrates the category of pesticides detected in each basin.

The chemicals most commonly detected in the agricultural and urban basins are listed in Table 1. Overall, the herbicide 2,4-D was the most commonly detected pesticide in the agricultural watershed.

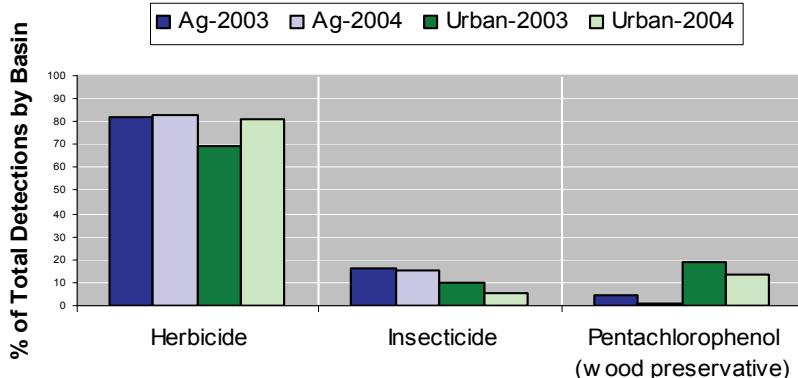


Figure 2 - Detections by pesticide category

Agricultural Basin		Urban Basin	
Active Ingredient Name	Common Name	Active Ingredient Name	Common Name
2,4-D	several	2,4-D	several (weed & feed)
atrazine	AATrex, Bicep	diazinon	several (insect control)
bromacil	Hyvar	dichlobenil	Casoron
bentazon	Basagran	MCPP	several (weed & feed)
chlorpyrifos	Dursban, Lorsban	pentachlorophenol	PCP, Penta
hexazinone	Velpar	prometon	Spectracide
MCPA	several	triclopyr	Brush-Be-Gon
malathion	several		
pendimethalin	Prowl		
simazine	Princep		
terbacil	Sinbar		

Table 1. Most commonly detected pesticides - all pesticides found in greater than 10 percent of the samples

## Future Direction

This monitoring study is designed to assess salmonid exposure to pesticides by compiling a minimum of three years of data and subsequently looking for trends across years to assess water quality – a weight of evidence approach.

## For More Information

Contact Jim Cowles, WSDA Endangered Species Program at (360) 902-2066 or [jcowles@agr.wa.gov](mailto:jcowles@agr.wa.gov). The 2003 and 2004 Surface Water Monitoring Program reports are available on the WSDA Endangered Species Program web site at [agr.wa.gov/PestFert/EnvResources/SWM/default.htm](http://agr.wa.gov/PestFert/EnvResources/SWM/default.htm)

Inquiries regarding the availability of this publication in alternative formats should be directed to the WSDA Receptionist at (360)902-1976 or Telecommunications Device for the Deaf at (360) 902-1996.